Gaming Trainer

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The official link for this solicitation is:
http://www.acq.osd.mil/osbp/sbir/solicitations/sbir20152/index.shtml

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Description:
  Several missile defense training systems exist to assist the Warfighter in learning and becoming operationally proficient with the system. This topic seeks to take this a step further by leveraging gaming technologies to determine critical areas of performance and to also design a wrapper to encourage the users to "play" the system, exercising those critical components to refine performance. Modeling and simulation using white cell participants is a common method of training. However, no methods using this approach give instant feedback in a competitive gaming environment. The goal of this topic is to analyze current gaming techniques and determine if any of them could be applied to missile defense battle management training. The effort should address and investigate methodologies for improving learning, participation, and motivation through the application of gaming technologies. Feedback should include some type of reward, possibly points, where the users can compete for skill levels. In planning a missile defense design, the blue force asset lay-down (consisting of sensors, shooters, and command and control (C2) elements) will vary in number. Collaboration between shooters via their elements also varies based on both proximity (communications restrictions) and capability. The threat (red force asset lay-down) will also vary in number and capability. Particularly in Phase I, the researcher can assume simple kinematic impact of nominal missile defense threat trajectories in order to create threat scenarios for scoring analysis. The researcher can also assume simple sensor characteristics when determining intercept timelines. Shooters may consist of single or multiple missile configurations with basic ballistic missile trajectories. The goal is not to replicate current missile defense planning system analysis capabilities, or to develop placement optimization routines, but to focus on innovative ways to

assess threat (red force) versus asset (blue force) missile defense design scenarios and to score the results in order to provide dynamic feedback to the operator. This feedback capability will optimize operator training with respect to determining planning methodologies and inherently improve retention and overall knowledge of battlespace management. A key focus of the innovation is identifying the set of variables, parameters and skills over which performance levels should be tested. PHASE I: Develop and demonstrate a gaming concept utilizing a missile defense design scoring algorithm that accommodates multiple threats of varying types and capabilities pitted against multiple sensors, shooters, and C2 elements also with varying capabilities. Provide feedback to the game participant in a quantitatively measurable format. Provide the capability to compare these "scores" based on the participant's alternatives or courses of action. PHASE II: Refine and update concept(s) based on Phase I results, and demonstrate the impacts of attrition based on both missile expenditure and/or loss of defense assets during raid scenarios in stressing environments. Demonstrate how the gaming concepts improve the operator's ability to quickly plan for variations in red force and blue force laydown restrictions. The government may choose to provide a government test bed at no cost if the developer wishes to utilize the facility for high fidelity testing. PHASE III: Demonstrate the new technologies via operation as part of a complete system or operation in a system-level test bed to allow for testing and evaluation in realistic scenarios. Transition technologies developed under this solicitation to relevant missile defense elements directly or through vendors. Commercialization: The contractor will pursue commercialization of the various technologies and optimization components developed in Phase II for potential commercial and military uses in many areas such as disaster drill planning, automated processing, accident trauma response planning, and manufacturing processes. There are many applications of planning for events that are rare and it is difficult to train adequately to maintain the needed top response skills. Turning training into a "game" with rewards would incentivize the user to train more frequently to maintain top skill levels.